

Appl. No. 09/904,311
Amdt. dated June 28, 2004
Reply to Office action of April 28, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-21. (Canceled).

22. (New) A method for determining private information and risk attitudes comprising:

accessing, from computer system memory, auction data from previously conducted auctions, wherein the auction data comprises bids submitted in utility-dependent auctions and bids submitted in utility-independent auctions, wherein the utility-dependent auctions comprise auctions in which bidding behavior depends on risk attitudes and the utility-independent auctions comprise auctions in which bidding behavior does not depend on risk attitudes;

determining private information using the bids submitted in the utility-independent auctions, wherein the private information comprises valuations; and

determining risk attitudes using the private information and the bids submitted in the utility-dependent auctions.

23. (New) The method of claim 22, wherein determining private information further comprises using statistical density estimation techniques to nonparametrically estimate a joint distribution of private information.

24. (New) The method of claim 22, wherein determining risk attitudes further comprises using quantile matching to nonparametrically estimate the risk attitudes.

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25. (New) The method of claim 22, wherein the utility-independent auctions and the utility-dependent auctions further comprise auctions for a same type of item.

26. (New) A computer system comprising:
storage that contains auction data from previously conducted auctions, wherein the auction data comprises bids submitted in utility-dependent auctions and bids submitted in utility-independent auctions, wherein the utility-dependent auctions comprise auctions in which bidding behavior depends on risk attitudes and the utility-independent auctions comprise auctions in which bidding behavior does not depend on risk attitudes; and
a processor that can access the storage, wherein the processor determines private information using the bids submitted in utility-independent auctions, wherein the private information comprises valuations, and determines risk attitudes using the private information and the bids submitted in utility-dependent auctions.

27. (New) The computer system of claim 26, wherein the processor determines the private information using statistical density estimation techniques to nonparametrically estimate a joint distribution of the private information.

28. (New) The computer system of claim 26, wherein the processor determines risk attitudes using quantile matching to nonparametrically estimate the risk attitudes.

29. (New) The computer system of claim 26, wherein the utility-independent auctions and the utility-dependent auctions further comprise auctions for a same type of item.

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30. (New) A storage medium storing instructions that, when executed by a processor, cause the processor to:

retrieve auction data from previously conducted auctions, wherein the auction data comprises bids submitted in utility-dependent auctions and bids submitted in utility-independent auctions;

estimate private information using the bids submitted in the utility-independent auctions; and

estimate risk attitudes based on the private information and the bids submitted in the utility-dependent auctions, wherein the utility-dependent auctions comprise auctions in which bidding behavior depends on risk attitudes, the utility-independent auctions comprise auctions in which bidding behavior does not depend on risk attitudes, and the private information comprises valuations.

31. (New) The storage medium of claim 30, wherein the instructions further cause the processor to apply statistical density estimation techniques to nonparametrically estimate the joint distribution of the private information.

32. (New) The storage medium of claim 30, wherein the instructions further cause the processor to apply quantile matching to nonparametrically estimate the risk attitudes.

33. (New) The storage medium of claim 30, wherein the utility-independent auctions and the utility-dependent auctions further comprise auctions for a same type of item.

34. (New) An auction design system, comprising:

a storage device containing an historical auction database comprising utility-dependent auction data for a plurality of utility-dependent auctions and utility-independent auction data for a plurality of utility-independent auctions, wherein the plurality of utility-dependent

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auctions comprises auctions in which bidding behavior depends on risk attitudes of a first plurality of bidders and the plurality of utility-independent auctions comprises auctions in which bidding behavior does not depend on risk attitudes of a second plurality of bidders; and

means for determining market structure, wherein private information for the second plurality of bidders is determined using the utility-independent auction data, the private information comprising valuations of the second plurality of bidders, and risk attitudes for the first plurality of bidders is determined using the private information and the utility-dependent auction data.

35. (New) The auction design system of claim 34, wherein the means for determining market structure uses statistical density estimation techniques to nonparametrically estimate the joint distribution of the private information, and uses the joint distribution to nonparametrically estimate the risk attitudes.

36. (New) The auction design system of claim 34, further comprising:
means for predicting bidding behavior for an auction decision candidate using the private information and the risk attitudes.

37. (New) The auction design system of claim 36, wherein
the storage device contains a bidding model database comprising auction bidding models; and
the means for predicting the bidding behavior further receives an auction decision candidate and constraints, selects a bidding model from the bidding model database using the auction decision candidate and constraints, and applies the private information and the risk attitudes to the bidding model to predict the bidding behavior.

38. (New) The auction design system of claim 37, further comprising:

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means for generating an evaluation of the auction decision candidate using the predicted bidding behavior, the private information, and the risk attitudes.

39. (New) A method for analyzing auction data comprising:
determining private information for a first plurality of bidders using utility-independent auction data stored in a computer system, the utility-independent auction data comprising auction data from a plurality of auctions in which bidding behavior does not depend on risk attitudes of the first plurality of bidders, and the private information comprising valuations of the first plurality of bidders; and
determining risk attitudes for a second plurality of bidders using the private information and utility-dependent auction data stored in the computer system, the utility-dependent auction data comprising auction data from a plurality of auctions in which bidding behavior depends on the risk attitudes of the second plurality of bidders.
40. (New) The method of claim 39, wherein
determining private information further comprises nonparametrically estimating the joint distribution of the private information; and
determining risk attitudes further comprises nonparametrically estimating the risk attitudes using the joint distribution.
41. (New) The method of claim 39, wherein the plurality of auctions in which bidding behavior depends on the risk attitudes and the plurality of auctions in which bidding behavior does not depend on the risk attitudes further comprise auctions for a same type of item.
42. (New) A method for analyzing auction data comprising:
accessing utility-independent auction data and utility-dependent auction data from an auction database, wherein the utility-independent

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auction data comprises data from auctions in which bidding behavior does not depend on risk attitudes and the utility-dependent auction data comprises data from auctions in which bidding behavior depends on risk attitudes;

determining a joint distribution function that represents private information of a first plurality of bidders using the utility-independent auction data, wherein the private information comprises valuations of the first plurality of bidders; and

determining a utility of wealth function of a second plurality of bidders using the joint distribution function and the utility-dependent auction data.

43. (New) The method of claim 42, wherein the auctions in which bidding behavior depends on risk attitudes and the auctions in which bidding behavior does not depend on risk attitudes further comprise auctions of a same type of item.

44. (New) The method of claim 42, wherein determining a joint distribution function further comprises using statistical density estimation techniques to nonparametrically estimate the joint distribution of the private information.